

# PATENT ABSTRACTS OF JAPAN

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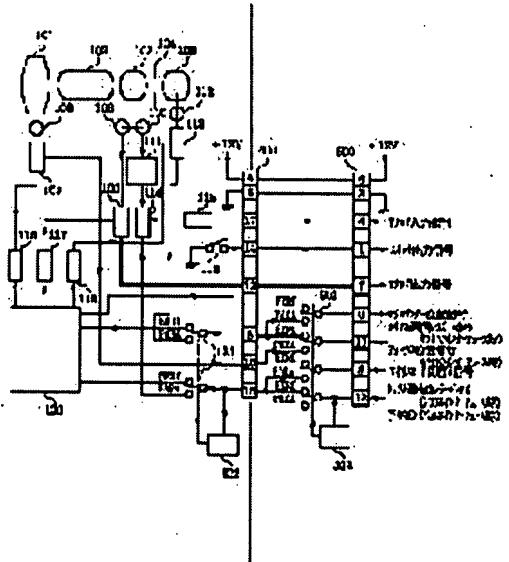
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## (54) PHOTOGRAPHING SYSTEM, ADAPTER DEVICE AND LENS DEVICE

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To make communication through a parallel interface conformable to communication through a serial interface and to appropriately perform communication between a television camera and a lens by providing a switching means for connecting the 1st terminal of a camera and the 2nd terminal of a 2nd lens device.

**SOLUTION:** When a portable television camera 200 is the one adaptable to the 12-pin serial interface, a serial communication signal is outputted from the 12th pin of a 12-pin connector 500. The serial communication signal is detected by an interface judging part 302 in a conversion adapter 300, and a 12-pin interface switching part 301 is switched to the serial interface. Thus, the serial communication signal passes through the 18th pin of a 36-pin connector 400 and is inputted in a large-sized television lens 100. The serial communication signal is detected by an interface judging part 122 in the lens 100, and a switching part 121 is switched to the serial interface side.



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2. \*\*\*\* shows the word which can not be translated.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the electric interface between a television camera and a television lens.

[0002]

[Description of the Prior Art] Conventionally, although it is high performance and various functions, it excels in mobility by 36 pin parallel (analog) interface and the small light weight using 36 pin connectors an expensive large-sized television camera and for large-sized television lenses, and two kinds of 12 pin parallel (analog) interfaces using 12 pin connectors a comparatively cheap portable television camera and for portable television lenses exist in the electric interface between a television camera and a television lens. The iris control signal which is assigned to the pin per connector for every function, for example, controls a diaphragm of a television lens from a television camera uses a No. 5 pin for these electric interfaces by 12 pin parallel interface for portable television cameras, and is using the No. 17 pin for them by 36 pin parallel interface for large-sized television cameras.

[0003] Drawing 4 is the conventional portable television camera and the block diagram of 12 pin parallel interface between portable television lenses. The electric interface between the portable television camera 200 and the portable television lens 700 is connected by 12 pin connectors 500 (in addition as a pin, only 1, 3, 4, 5, 6, and 7 are shown, and other pins are omitted.). The analog input signal represented with electromotion and which [ manual ] by the switch input signal represented by the function which changes whether the main items of these electrical-and-electric-equipment interface operate an iris from the portable television camera 200, and said iris control signal is inputted into the portable television lens 700. Moreover, from the portable television lens 700, the analog output signal represented by the switch output signal represented by the function which changes ON/OFF of a VTR image transcription, and the iris position signal is outputted to the portable television camera 200.

[0004] Next, the interior of the portable television lens 700 is explained.

[0005] A switch input signal is inputted into the analog control signal operation part 115, and the function in the portable television lens 700 according to the contents of the switch is operated. Moreover, sequential connection of the analog input signal is made to the motor 110 which works the analog control operation part 115, the driver line 111 which makes a motor drive and the optical system which is not illustrated, for example, a focal lens group, a zoom lens group, an iris wing, an extender lens group, etc. The position transducer 108 which is interlocked with a motor 110 and detects the condition of optical system is attached in said optical system, and the signal from a position transducer 108 is outputted to the portable television camera 200 as an analog output signal through the analog position signal operation part 109. The information on the switch 119 in the portable television lens 700 is also outputted to the portable television camera 200 as a switch output as a switch output signal.

[0006] In recent years, using a large-sized television lens for a portable television camera has also increased with improvement in the engine performance of a portable television camera. In this case, it is common to use a 36 pin interface-12 pin interface conversion adapter between a portable television camera and a large-sized television lens.

[0007] Moreover, in order to realize virtual studio correspondence and further future high performance-ization, since the escape and highly-precise-izing beyond this are difficult, at the present parallel interface, 12 pin serial interface and 36 pin serial interface which assigned the function of the serial communication of each television camera both directions from the television lens and the television lens are spreading from a television camera in recent years in 12

pin parallel interface which is an electric interface of a television camera-television lens, and 36 pin parallel interface. If it will serve as serial interface if the television camera attached carries the serial communication function, and the television lens which carried these serial communication function does not carry the serial communication function, it makes existence of serial communication a decision criterion, and changes to a parallel interface automatically.

[0008]

[Problem(s) to be Solved by the Invention] However, although the serial communication function was assigned to the No. 12 pin of the focal position signal pin of extremely few [ operating frequency ] No. 11 pins, and an intact pin in 12 pin parallel interface when assigning a serial communication function to a parallel interface, the serial communication function is assigned to the extender position signal pin and the iris mode change signal pin from the reasons of there being no intact pin in 36 pin parallel interface. That is, the serial communication function from a television lens to a television camera is assigned to the No. 8 pin by the No. 11 pin and 36 pin serial interface at 12 pin serial interface. Therefore, by the 36 pin interface-12 pin interface conversion adapter, in case the large-sized television lens which carried the serial communication function is used with the portable television camera which carried the serial communication function, it is necessary to change so that the No. 8 pin of 36 pin connectors may be connected to the No. 11 pin of 12 pin connectors. However, since, as for the No. 11 pin of 12 pin parallel interface, the position signal of an extender is assigned for the position signal of a focus to the No. 8 pin of 36 pin parallel interface, respectively, In case the large-sized television lens which carried the serial communication function is used, the portable television camera, i.e., the parallel interface, which does not carry a serial communication function The position signal of the extender outputted from the large-sized television lens when said 36 pin interface-12 pin interface conversion adapter was used a portable television camera A problem arises at the time of a parallel interface, such as recognizing as a position signal of a focus.

[0009]

[Means for Solving the Problem] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 1 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 of 400\*\* of drawing 1 ) of the 2nd lens equipment for communicating said 1st information on the occasion of the 1st terminal (11 of 500\*\* of drawing 1 ) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 1 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In the photography system to which the 2nd terminal (8 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected to, and connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted The photography system which cancels above un-arranging by establishing the change means to which the 1st terminal of said camera and the 2nd terminal of the 2nd lens equipment are connected is offered.

[0010] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 2 of this invention It is the adapter measure in which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 [ of drawing 1 ] of 400) of the 2nd lens equipment for communicating said 1st information on the occasion of the 1st terminal ( drawing 1 , 11 of 500) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 1 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In the adapter equipment to which the 2nd terminal (8 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected to, and connection between the camera in the communication link by parallel and the 2nd lens

equipment is fitted The change means to which the 1st terminal of said camera and the 2nd terminal of the 2nd lens equipment are connected is established, and the adapter equipment which canceled above un-arranging is offered. [0011] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 3 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment, said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 1 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected. In the photography system to which connection between a camera and the 2nd lens equipment is fitted in the communication link by parallel The change means to which the 1st terminal of said 2nd lens equipment and the 2nd terminal for the serial communication of a camera (12 [ of drawing 1 ] of 500) are connected is established, and the photography system which canceled said un-arranging is offered.

[0012] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 4 of this invention It is adapter equipment to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment Said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 1 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected. In the adapter equipment to which connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted The change means to which the 1st terminal of said 2nd lens equipment and the 2nd terminal for the serial communication of a camera (12 [ of drawing 1 ] of 500) are connected is established, and the adapter equipment which canceled said un-arranging is offered.

[0013] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 5 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 [ of drawing 2 ] of 400) of the 2nd lens equipment for communicating said 1st information on the occasion of the 1st terminal (11 [ of drawing 2 ] of 500) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 2 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In the photography system to which the 2nd terminal (8 [ of drawing 2 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected to, and connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted A change means to connect serial communication Rhine in said 2nd lens equipment to the 1st terminal of said 2nd lens equipment is established, and the photography system which canceled said un-arranging is offered.

[0014] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 6 of this invention Adapter equipment is minded to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. Said 1st lens equipment connected is lens equipment with which terminal configurations differ. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 [ of drawing 2 ] of 400) of the lens equipment for communicating said 1st information on the occasion of the 1st terminal (11 [ of drawing 2 ] of 500) of the camera for performing serial communication and the communication link of said parallel is

connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 2 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In said lens equipment with which the 2nd terminal (8 [ of drawing 2 ] of 400) of the lens equipment for performing serial communication on the occasion of the communication link by the serial is connected, and connection relation with the camera in the communication link by parallel suits A change means to connect serial communication Rhine in said lens equipment to the 1st terminal of said lens equipment is established, and the lens equipment which canceled said un-arranging is offered.

[0015] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 7 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment, said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 2 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 2 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected. In the photography system to which connection between a camera and the 2nd lens equipment is fitted in the communication link by parallel The change means to which the serial line in the 2nd lens equipment is connected to the 2nd terminal (19 [ of drawing 2 ] of 400) of the 2nd lens equipment connected with the 2nd terminal for the serial communication prepared in said camera (12 [ of drawing 2 ] of 500) through said adapter equipment is established. The photography system which canceled said un-arranging is offered.

[0016] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 8 of this invention Said 1st lens equipment connected through adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates is lens equipment of a different terminal configuration. According to an operation of this adapter equipment Said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 2 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 2 ] of 400) of said lens equipment for performing serial communication on the occasion of the communication link by the serial is connected, and it sets to the lens equipment with which connection between a camera and said lens equipment suits in the communication link by parallel. The change means to which the serial line in lens equipment is connected to the 2nd terminal (19 [ of drawing 2 ] of 400) of the lens equipment connected with the 2nd terminal for the serial communication prepared in said camera (12 [ of drawing 2 ] of 500) through said adapter equipment is established. The lens equipment which canceled said un-arranging is offered.

[0017] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 22 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. In the photography system which performs adaptation-ization between each terminal of a camera, and each terminal of the 2nd lens equipment on the occasion of the communication link by said parallel, and performs the parallel communication link between a camera and the 2nd lens according to an operation of this adapter equipment While making the predetermined terminal of the camera which connects with the terminal of said 2nd lens equipment on the occasion of a parallel communication link, and is used as a terminal of a parallel communication link use it as a terminal of serial communication at the time of serial communication The change means to which the serial line in the 2nd lens equipment and said predetermined terminal of said camera are connected on the occasion of serial communication is established, and the photography system which canceled said un-arranging is offered.

[0018] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 23 of this invention It is adapter equipment to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates.

According to an operation of this adapter equipment In the adapter equipment to which perform adaptation-ization between each terminal of a camera, and each terminal of the 2nd lens equipment on the occasion of the communication link by said parallel, and the parallel communication link between a camera and the 2nd lens is made to perform Said adapter equipment connects with the predetermined terminal of said 2nd lens equipment on the occasion of a parallel communication link. A change means to change and connect with other terminals of the 2nd lens equipment which has connected to the serial line of said 2nd lens equipment the parallel and the serial combination terminal of a camera which are used as a terminal of a parallel communication link at the time of serial communication is established. The adapter equipment which canceled said un-arranging is offered.

[0019]

[Embodiment of the Invention] (Gestalt of the 1st operation) A drawing explains the gestalt of operation of the 1st of this invention to below.

[0020] An example of the block diagram of the interface between the portable television camera in the gestalt of operation of the 1st of this invention and a large-sized television lens is shown in drawing 1.

[0021] As shown in drawing 1, a large-sized television lens and 200 100 A portable television camera, The 36 pin interface-12 pin interface conversion adapter from which 300 changes connection between the large-sized television lens 100 and the portable television camera 200, 400 is 36 pin connectors (only 4, 5, 8, 12, 14, 16, and a No. 17 or 18 pin are shown by a diagram, and others are omitting.) which connect the 36 pin interface-12 pin interface conversion adapter 300 with the large-sized television lens 100. 500 is 12 pin connectors (only 1, 3, 5, 6, 7, 8, 9, and No. 11 or 12 are shown by a diagram.) which connect the 36 pin interface-12 pin interface conversion adapter 300 with the portable television camera 200.

[0022] Next, the configuration inside the large-sized television lens 100 is explained.

[0023] The focal lens group in which 101 performs a focus, the zoom lens group in which 102 performs variable power accommodation, the relay lens group in which 103 performs image formation accommodation, the iris wing which adjusts by 104 extracting, and 105 are extender lens groups which change the variable power range, and constitute the optical system of the Otama television lens 100 from these lens groups.

[0024] The focal position transducer with which 106 detects the location of the focal lens group 101, and 107 are focal position signal operation part which calculates the signal from the focal position transducer 106. It collects into one and the below-mentioned configurations 108-115 are explained to the iris section, the zoom section, etc. here, although it is the need respectively. The analog position transducer with which 108 detects locations, such as a drawing location of the iris wing 104 and the zoom lens group 102, the analog position signal operation part to which 109 calculates the signal from an analog position transducer, the motor by which 110 works the iris wing 104, the zoom lens group 102, etc., and 111 are driver lines which make a motor 110 drive. An extender position transducer for 112 to detect the location of an extender lens group, The extender position signal operation part to which 113 calculates the signal from the extender position transducer 112, The iris servo gain transducer by which 114 changes the gain of iris servo system with the iris mode change signal from the portable television camera 200 (unnecessary in zoom servo system), The analog control signal operation part to which 115 carries out data processing of the control signal from the portable television camera 200, An A/D converter for 116, 117, and 118 to incorporate the signal from the focal position signal operation part 107, the analog position signal operation part 109, and extender position signal operation part to below-mentioned CPU120, respectively, The switch represented by the function in which 119 changes ON/OFF of a VTR image transcription, CPU in which 120 manages a serial communication function, 36 pin interface change section to which 121 changes 36 pin serial interface and 36 pin parallel interface, It is the interface decision section which judges whether the portable television camera 200 connected by the existence of a serial communication signal is serial interface, and whether 122 is a parallel interface, and controls 36 pin interface change section 121.

[0025] The configuration inside the 36 pin interface-12 pin interface conversion adapter 300 is explained.

[0026] It is the interface decision section which judges whether the portable television camera 200 connected is serial interface and whether 12 pin interface change section to which 301 changes 12 pin serial interface and 12 pin parallel interface, and 302 are parallel interfaces, and controls 12 pin interface change section 301.

[0027] In the above-mentioned configuration, when the portable television camera 200 is 12 pin serial interface correspondence, a serial communication signal is outputted from the No. 12 pin of 12 pin connectors 500. This serial communication signal is detected in the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300, and 12 pin interface change section 301 is changed to serial interface. Thereby, the serial

communication signal outputted from the portable television camera 200 passes the No. 18 pin of 36 pin connectors 400, and is inputted into the large-sized television lens 100. Within the large-sized television lens 100, a serial communication signal is detected by the interface decision section 122, and 36 pin interface change section 121 is changed to a serial interface side.

[0028] When the portable television camera 200 has not 12 pin serial interface corresponded, a serial communication signal is not outputted from the No. 12 pin of 12 pin connectors 500. Since the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300 cannot detect a serial communication signal, it judges it as a parallel interface and changes 12 pin interface change section 301 to a parallel interface side. Similarly, since the interface decision section 122 in the large-sized television lens 100 cannot detect a serial communication signal, either, the interface decision section 122 judges it to be a parallel interface, and changes 36 pin interface change section 121 for it to a parallel interface side.

[0029] Moreover, although the serial communication signal was detected in the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300 and 12 pin interface change section 301 is changed with the gestalt of the 1st operation, 12 pin interface change section 301 may be changed manually. In this case, it switches to the exterior of an adapter 300, a member is prepared, and Mr. \*\*\*\*\* constitutes manual switching.

[0030] Furthermore, although the serial communication signal was detected in the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300 and 12 pin interface change section 301 is changed with the gestalt of the 1st operation, these activities may be done in the portable television camera 200 side.

[0031] As explained above, the dissolution of the fault of connection of the serial interface at the time of using the large-sized television lens corresponding to serial interface for a portable television camera and a parallel interface is realizable by establishing the means and the interface change means of judging which interface of serial one and parallel it being to a 36 pin interface-12 pin interface conversion adapter, between a large-sized television lens and a portable television camera.

[0032] (Gestalt of the 2nd operation) With the operation gestalt of the above 1st, although the change function of serial interface and a parallel interface was given to the 36 pin interface-12 pin interface conversion adapter between a large-sized television lens and a portable television camera, in the gestalt of the 2nd operation, it is considering as the configuration which gave the change function of an interface to the interior of a large-sized television lens.

[0033] A drawing explains the 2nd operation gestalt of this invention to below.

[0034] Drawing 2 is the block diagram of the interface between the portable television camera in which the gestalt of operation of the 2nd of this invention is shown, and a large-sized television lens.

[0035] As shown in Drawing 2, the 36 pin interface-12 pin interface conversion adapter from which a large-sized television lens and 200 change a portable television camera, and, as for 100, 300 changes connection between the large-sized television lens 100 and the portable television camera 200, and 400 are 36 pin connectors which connect the 36 pin interface-12 pin interface conversion adapter 300 with the large-sized television lens 100, and show only 4, 5, 8, 12, 14, 16, 17, and a No. 18 or 19 pin as a pin, and other pins are omitted. 500 is 12 pin connectors which connect the 36 pin interface-12 pin interface conversion adapter 300 with the portable television camera 200, as a pin, only 1, 3, 5, 6, 7, 8, and a No. 11 or 12 pin are shown, and other pins are omitted.

[0036] Next, the configuration inside the large-sized television lens 100 is explained.

[0037] About 101-121, it is the same configuration as the gestalt of the 1st operation, and the explanation is omitted.

[0038] The serial communication change section to which 123 changes pin assignment of a serial communication function according to the television camera connected, and 124 are the interface decision sections which judge whether the television camera 200 connected by the existence of serial communication data is 12 pin serial interface, 36 pin serial interface, or a parallel interface, and control 36 pin interface change section 121 and the serial communication change section 123.

[0039] The 36 pin interface-12 pin interface conversion adapter 300 uses what is making only a wiring change, in order to take adjustment of 36 pin parallel interface currently used from the former, and 12 pin parallel interface.

[0040] In the above-mentioned configuration, when the portable television camera 200 is 12 pin serial interface correspondence, a serial communication signal is inputted from the No. 19 pin of 36 pin connectors 400 through the No. 12 pin of 12 pin connectors 500. This serial communication signal is detected in the interface decision section 124 in the large-sized television lens 100, and 36 pin interface change section 121 is changed to a serial interface side. Moreover, having been inputted from the No. 19 pin side of 36 pin connectors 400 also detects, a serial communication

number changes the serial communication change section 123 to 12 pin interface side, and the interface decision section 124 performs serial communication to coincidence.

[0041] When the portable television camera 200 has not 12 pin serial interface corresponded, a serial communication signal is not inputted from the No. 12 pin of 12 pin connectors 500, and the No. 19 pin of 36 pin connectors 400. Since the interface decision section 124 in the large-sized television lens 100 cannot detect a serial communication signal, it judges it as a parallel interface and changes 36 pin interface change section 121 to a parallel interface side.

[0042] Next, the block diagram at the time of using the large-sized television lens of the gestalt of the 2nd operation with a large-sized television camera is shown in drawing 3.

[0043] As shown in drawing 3, 600 is a large-sized television camera. Since the large-sized television camera 600 and the large-sized television lens 100 are 36 pin interfaces, they are unnecessary. [ of a 36 pin interface-12 pin interface conversion adapter ]

[0044] In the above-mentioned configuration, when the large-sized television camera 600 is 36 pin serial interface correspondence, a serial communication signal is inputted from the No. 18 pin of 36 pin connectors 400. This serial communication signal is detected in the interface decision section 124 in the large-sized television lens 100, and 36 pin interface change section 121 is changed to a serial interface side. Moreover, having been inputted from the No. 18 pin side of 36 pin connectors 400 also detects, a serial communication number changes the serial communication change section 123 to 36 pin interface side, and the interface decision section 124 performs serial communication to coincidence.

[0045] When the large-sized television camera 600 has not 36 pin serial interface corresponded, a serial communication signal is not inputted from the No. 18 pin of 36 pin connectors 400. Since the interface decision section 124 in the large-sized television lens 100 cannot detect a serial communication signal, it judges it as a parallel interface and changes 36 pin interface change section 121 to a parallel interface side.

[0046] Moreover, although the serial communication signal was detected in the interface decision section 124 in the large-sized television lens 100 and 36 pin interface change section 121 and the serial communication change section 123 are changed with the gestalt of operation of \*\*\*\* 2, 36 pin interface change section 121 and the serial communication change section 123 may be changed manually.

[0047] Furthermore, although the serial communication signal was detected in the interface decision section 124 in the large-sized television lens 100 and 36 pin interface change section 121 and the serial communication change section 123 are changed with the gestalt of operation of \*\*\*\* 2, these activities may be done by the portable television lens 200 side.

[0048] the dissolution of the fault of connection of the serial interface at the time of looking like [ a portable television camera ] the large-sized television lens corresponding to serial interface, and using it and a parallel interface is realizable by establishing a means to judge whether they are one of the interfaces of serial one and parallel in a large-sized television lens as explained above, a means to judge whether it is 36 pin serial interface at the time of serial interface, and whether it is 12 pin serial interface, and an interface change means.

[0049]

[Effect of the Invention] As explained above, in case the large-sized television lens which carries a serial communication function is used for a portable television camera, by each claim, the dissolution of the fault of connection of the serial interface of the large-sized television lens corresponding to serial interface and a parallel interface is realized by forming a means (change means) to change pin assignment with each interface in the interior of an adapter or a large-sized television lens, or a photography system.

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**TECHNICAL FIELD**

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[Field of the Invention] This invention relates to the electric interface between a television camera and a television lens.

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## PRIOR ART

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[Description of the Prior Art] Conventionally, although it is high performance and various functions, it excels in mobility by 36 pin parallel (analog) interface and the small light weight using 36 pin connectors an expensive large-sized television camera and for large-sized television lenses, and two kinds of 12 pin parallel (analog) interfaces using 12 pin connectors a comparatively cheap portable television camera and for portable television lenses exist in the electric interface between a television camera and a television lens. The iris control signal which is assigned to the pin per connector for every function, for example, controls a diaphragm of a television lens from a television camera uses a No. 5 pin for these electric interfaces by 12 pin parallel interface for portable television cameras, and is using the No. 17 pin for them by 36 pin parallel interface for large-sized television cameras.

[0003] Drawing 4 is the conventional portable television camera and the block diagram of 12 pin parallel interface between portable television lenses. The electric interface between the portable television camera 200 and the portable television lens 700 is connected by 12 pin connectors 500 (in addition as a pin, only 1, 3, 4, 5, 6, and 7 are shown, and other pins are omitted.). The analog input signal represented with electromotion and which [ manual ] by the switch input signal represented by the function which changes whether the main items of these electrical-and-electric-equipment interface operate an iris from the portable television camera 200, and said iris control signal is inputted into the portable television lens 700. Moreover, from the portable television lens 700, the analog output signal represented by the switch output signal represented by the function which changes ON/OFF of a VTR image transcription, and the iris position signal is outputted to the portable television camera 200.

[0004] Next, the interior of the portable television lens 700 is explained.

[0005] A switch input signal is inputted into the analog control signal operation part 115, and the function in the portable television lens 700 according to the contents of the switch is operated. Moreover, sequential connection of the analog input signal is made to the motor 110 which works the analog control operation part 115, the driver line 111 which makes a motor drive and the optical system which is not illustrated, for example, a focal lens group, a zoom lens group, an iris wing, an extender lens group, etc. The position transducer 108 which is interlocked with a motor 110 and detects the condition of optical system is attached in said optical system, and the signal from a position transducer 108 is outputted to the portable television camera 200 as an analog output signal through the analog position signal operation part 109. The information on the switch 119 in the portable television lens 700 is also outputted to the portable television camera 200 as a switch output as a switch output signal.

[0006] In recent years, using a large-sized television lens for a portable television camera has also increased with improvement in the engine performance of a portable television camera. In this case, it is common to use a 36 pin interface-12 pin interface conversion adapter between a portable television camera and a large-sized television lens.

[0007] Moreover, in order to realize virtual studio correspondence and further future high performance-ization, since the escape and highly-precise-izing beyond this are difficult, at the present parallel interface, 12 pin serial interface and 36 pin serial interface which assigned the function of the serial communication of each television camera both directions from the television lens and the television lens are spreading from a television camera in recent years in 12 pin parallel interface which is an electric interface of a television camera-television lens; and 36 pin parallel interface. If it will serve as serial interface if the television camera attached carries the serial communication function, and the television lens which carried these serial communication function does not carry the serial communication function, it makes existence of serial communication a decision criterion, and changes to a parallel interface automatically.

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[Translation done.]

**\* NOTICES \***

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**EFFECT OF THE INVENTION**

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**[Effect of the Invention]** A means to change pin assignment with each interface in case the large-sized television lens which carries a serial communication function is used for a portable television camera in each claim, as explained above

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[Translation done.]

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## TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] However, although the serial communication function was assigned to the No. 12 pin of the focal position signal pin of extremely few [ operating frequency ] No. 11 pins, and an intact pin in 12 pin parallel interface when assigning a serial communication function to a parallel interface, the serial communication function is assigned to the extender position signal pin and the iris mode change signal pin from the reasons of there being no intact pin in 36 pin parallel interface. That is, the serial communication function from a television lens to a television camera is assigned to the No. 8 pin by the No. 11 pin and 36 pin serial interface at 12 pin serial interface. Therefore, by the 36 pin interface-12 pin interface conversion adapter, in case the large-sized television lens which carried the serial communication function is used with the portable television camera which carried the serial communication function, it is necessary to change so that the No. 8 pin of 36 pin connectors may be connected to the No. 11 pin of 12 pin connectors. However, since, as for the No. 11 pin of 12 pin parallel interface, the position signal of an extender is assigned for the position signal of a focus to the No. 8 pin of 36 pin parallel interface, respectively, In case the large-sized television lens which carried the serial communication function is used, the portable television camera, i.e., the parallel interface, which does not carry a serial communication function The position signal of the extender outputted from the large-sized television lens when said 36 pin interface-12 pin interface conversion adapter was used a portable television camera A problem arises at the time of a parallel interface, such as recognizing as a position signal of a focus.

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MEANS

[Means for Solving the Problem] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 1 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 of 400\*\* of drawing 1) of the 2nd lens equipment for communicating said 1st information on the occasion of the 1st terminal (11 of 500\*\* of drawing 1) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 1 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In the photography system to which the 2nd terminal (8 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected to, and connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted The photography system which cancels above un-arranging by establishing the change means to which the 1st terminal of said camera and the 2nd terminal of the 2nd lens equipment are connected is offered.

[0010] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 2 of this invention It is the adapter measure in which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 [ of drawing 1 ] of 400) of the 2nd lens equipment for communicating said 1st information on the occasion of the 1st terminal ( drawing 1 , 11 of 500) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 1 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In the adapter equipment to which the 2nd terminal (8 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected to, and connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted The change means to which the 1st terminal of said camera and the 2nd terminal of the 2nd lens equipment are connected is established, and the adapter equipment which canceled above un-arranging is offered.

[0011] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 3 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment, said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 1 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial

communication on the occasion of the communication link by the serial is connected. In the photography system to which connection between a camera and the 2nd lens equipment is fitted in the communication link by parallel The change means to which the 1st terminal of said 2nd lens equipment and the 2nd terminal for the serial communication of a camera (12 [ of drawing 1 ] of 500) are connected is established, and the photography system which canceled said un-arranging is offered.

[0012] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 4 of this invention It is adapter equipment to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment Said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 1 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 1 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected. In the adapter equipment to which connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted The change means to which the 1st terminal of said 2nd lens equipment and the 2nd terminal for the serial communication of a camera (12 [ of drawing 1 ] of 500) are connected is established, and the adapter equipment which canceled said un-arranging is offered.

[0013] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 5 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 [ of drawing 2 ] of 400) of the 2nd lens equipment for communicating said 1st information on the occasion of the 1st terminal (11 [ of drawing 2 ] of 500) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 2 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In the photography system to which the 2nd terminal (8 [ of drawing 2 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected to, and connection between the camera in the communication link by parallel and the 2nd lens equipment is fitted A change means to connect serial communication Rhine in said 2nd lens equipment to the 1st terminal of said 2nd lens equipment is established, and the photography system which canceled said un-arranging is offered.

[0014] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 6 of this invention Adapter equipment is minded to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. Said 1st lens equipment connected is lens equipment with which terminal configurations differ. According to an operation of this adapter equipment A communication link is faced. the communication link by said parallel -- facing -- the 1st information -- communicating -- while -- a serial -- The 1st terminal (16 [ of drawing 2 ] of 400) of the lens equipment for communicating said 1st information on the occasion of the 1st terminal (11 [ of drawing 2 ] of 500) of the camera for performing serial communication and the communication link of said parallel is connected. Moreover, while communicating said 2nd information on the occasion of the 2nd terminal (9 [ of drawing 2 ] of 500) of the camera for communicating the 2nd information on the occasion of the communication link by said parallel, and the communication link of said parallel In said lens equipment with which the 2nd terminal (8 [ of drawing 2 ] of 400) of the lens equipment for performing serial communication on the occasion of the communication link by the serial is connected, and connection relation with the camera in the communication link by parallel suits A change means to connect serial communication Rhine in said lens equipment to the 1st terminal of said lens equipment is established, and the lens equipment which canceled said un-arranging is offered.

[0015] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 7 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function

which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment, said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 2 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 2 ] of 400) of the 2nd lens equipment for performing serial communication on the occasion of the communication link by the serial is connected. In the photography system to which connection between a camera and the 2nd lens equipment is fitted in the communication link by parallel The change means to which the serial line in the 2nd lens equipment is connected to the 2nd terminal (19 [ of drawing 2 ] of 400) of the 2nd lens equipment connected with the 2nd terminal for the serial communication prepared in said camera (12 [ of drawing 2 ] of 500) through said adapter equipment is established. The photography system which canceled said un-arranging is offered.

[0016] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 8 of this invention Said 1st lens equipment connected through adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates is lens equipment of a different terminal configuration. According to an operation of this adapter equipment Said 1st information is communicated on the occasion of the 1st terminal (8 [ of drawing 2 ] of 500) of the camera with which the 1st information communicates on the occasion of the communication link by said parallel, and the communication link of said parallel. Moreover, the 1st terminal (18 [ of drawing 2 ] of 400) of said lens equipment for performing serial communication on the occasion of the communication link by the serial is connected, and it sets to the lens equipment with which connection between a camera and said lens equipment suits in the communication link by parallel. The change means to which the serial line in lens equipment is connected to the 2nd terminal (19 [ of drawing 2 ] of 400) of the lens equipment connected with the 2nd terminal for the serial communication prepared in said camera (12 [ of drawing 2 ] of 500) through said adapter equipment is established. The lens equipment which canceled said un-arranging is offered.

[0017] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 22 of this invention It is the photography system to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs using adapter equipment to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. In the photography system which performs adaptation-ization between each terminal of a camera, and each terminal of the 2nd lens equipment on the occasion of the communication link by said parallel, and performs the parallel communication link between a camera and the 2nd lens according to an operation of this adapter equipment While making the predetermined terminal of the camera which connects with the terminal of said 2nd lens equipment on the occasion of a parallel communication link, and is used as a terminal of a parallel communication link use it as a terminal of serial communication at the time of serial communication The change means to which the serial line in the 2nd lens equipment and said predetermined terminal of said camera are connected on the occasion of serial communication is established, and the photography system which canceled said un-arranging is offered.

[0018] While having two or more terminals which suited the 1st lens equipment which has two or more terminals in claim 23 of this invention It is adapter equipment to which a terminal configuration connects the 2nd lens equipment with which said 1st lens equipment differs to the camera which has the function which is parallel and communicates information to said 1st lens equipment through said terminal, and the function which is serial and communicates. According to an operation of this adapter equipment In the adapter equipment to which perform adaptation-ization between each terminal of a camera, and each terminal of the 2nd lens equipment on the occasion of the communication link by said parallel, and the parallel communication link between a camera and the 2nd lens is made to perform Said adapter equipment connects with the predetermined terminal of said 2nd lens equipment on the occasion of a parallel communication link. A change means to change and connect with other terminals of the 2nd lens equipment which has connected to the serial line of said 2nd lens equipment the parallel and the serial combination terminal of a camera which are used as a terminal of a parallel communication link at the time of serial communication is established. The adapter equipment which canceled said un-arranging is offered.

[0019]

[Embodiment of the Invention] (Gestalt of the 1st operation) A drawing explains the gestalt of operation of the 1st of

this invention to below.

[0020] An example of the block diagram of the interface between the portable television camera in the gestalt of operation of the 1st of this invention and a large-sized television lens is shown in drawing 1.

[0021] As shown in drawing 1, a large-sized television lens and 200 100 A portable television camera, The 36 pin interface-12 pin interface conversion adapter from which 300 changes connection between the large-sized television lens 100 and the portable television camera 200, 400 is 36 pin connectors (only 4, 5, 8, 12, 14, 16, and a No. 17 or 18 pin are shown by a diagram, and others are omitting.) which connect the 36 pin interface-12 pin interface conversion adapter 300 with the large-sized television lens 100. 500 is 12 pin connectors (only 1, 3, 5, 6, 7, 8, 9, and No. 11 or 12 are shown by a diagram.) which connect the 36 pin interface-12 pin interface conversion adapter 300 with the portable television camera 200.

[0022] Next, the configuration inside the large-sized television lens 100 is explained.

[0023] The focal lens group in which 101 performs a focus, the zoom lens group in which 102 performs variable power accommodation, the relay lens group in which 103 performs image formation accommodation, the iris wing which adjusts by 104 extracting, and 105 are extender lens groups which change the variable power range, and constitute the optical system of the Otama television lens 100 from these lens groups.

[0024] The focal position transducer with which 106 detects the location of the focal lens group 101, and 107 are focal position signal operation part which calculates the signal from the focal position transducer 106. It collects into one and the below-mentioned configurations 108-115 are explained to the iris section, the zoom section, etc. here, although it is the need respectively. The analog position transducer with which 108 detects locations, such as a drawing location of the iris wing 104 and the zoom lens group 102, the analog position signal operation part to which 109 calculates the signal from an analog position transducer, the motor by which 110 works the iris wing 104, the zoom lens group 102, etc., and 111 are driver lines which make a motor 110 drive. An extender position transducer for 112 to detect the location of an extender lens group, The extender position signal operation part to which 113 calculates the signal from the extender position transducer 112, The iris servo gain transducer by which 114 changes the gain of iris servo system with the iris mode change signal from the portable television camera 200 (unnecessary in zoom servo system), The analog control signal operation part to which 115 carries out data processing of the control signal from the portable television camera 200, An A/D converter for 116, 117, and 118 to incorporate the signal from the focal position signal operation part 107, the analog position signal operation part 109, and extender position signal operation part to below-mentioned CPU120, respectively, The switch represented by the function in which 119 changes ON/OFF of a VTR image transcription, CPU in which 120 manages a serial communication function, 36 pin interface change section to which 121 changes 36 pin serial interface and 36 pin parallel interface, It is the interface decision section which judges whether the portable television camera 200 connected by the existence of a serial communication signal is serial interface, and whether 122 is a parallel interface, and controls 36 pin interface change section 121.

[0025] The configuration inside the 36 pin interface-12 pin interface conversion adapter 300 is explained.

[0026] It is the interface decision section which judges whether the portable television camera 200 connected is serial interface and whether 12 pin interface change section to which 301 changes 12 pin serial interface and 12 pin parallel interface, and 302 are parallel interfaces, and controls 12 pin interface change section 301.

[0027] In the above-mentioned configuration, when the portable television camera 200 is 12 pin serial interface correspondence, a serial communication signal is outputted from the No. 12 pin of 12 pin connectors 500. This serial communication signal is detected in the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300, and 12 pin interface change section 301 is changed to serial interface. Thereby, the serial communication signal outputted from the portable television camera 200 passes the No. 18 pin of 36 pin connectors 400, and is inputted into the large-sized television lens 100. Within the large-sized television lens 100, a serial communication signal is detected by the interface decision section 122, and 36 pin interface change section 121 is changed to a serial interface side.

[0028] When the portable television camera 200 has not 12 pin serial interface corresponded, a serial communication signal is not outputted from the No. 12 pin of 12 pin connectors 500. Since the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300 cannot detect a serial communication signal, it judges it as a parallel interface and changes 12 pin interface change section 301 to a parallel interface side. Similarly, since the interface decision section 122 in the large-sized television lens 100 cannot detect a serial communication signal, either, the interface decision section 122 judges it to be a parallel interface, and changes 36 pin interface change section 121

for it to a parallel interface side.

[0029] Moreover, although the serial communication signal was detected in the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300 and 12 pin interface change section 301 is changed with the gestalt of the 1st operation, 12 pin interface change section 301 may be changed manually. In this case, it switches to the exterior of an adapter 300, a member is prepared, and Mr. \*\*\*\*\* constitutes manual switching.

[0030] Furthermore, although the serial communication signal was detected in the interface decision section 302 in the 36 pin interface-12 pin interface conversion adapter 300 and 12 pin interface change section 301 is changed with the gestalt of the 1st operation, these activities may be done in the portable television camera 200 side.

[0031] As explained above, the dissolution of the fault of connection of the serial interface at the time of using the large-sized television lens corresponding to serial interface for a portable television camera and a parallel interface is realizable by establishing the means and the interface change means of judging which interface of serial one and parallel it being to a 36 pin interface-12 pin interface conversion adapter, between a large-sized television lens and a portable television camera.

[0032] (Gestalt of the 2nd operation) With the operation gestalt of the above 1st, although the change function of serial interface and a parallel interface was given to the 36 pin interface-12 pin interface conversion adapter between a large-sized television lens and a portable television camera, in the gestalt of the 2nd operation, it is considering as the configuration which gave the change function of an interface to the interior of a large-sized television lens.

[0033] A drawing explains the 2nd operation gestalt of this invention to below.

[0034] Drawing 2 is the block diagram of the interface between the portable television camera in which the gestalt of operation of the 2nd of this invention is shown, and a large-sized television lens.

[0035] As shown in Drawing 2, the 36 pin interface-12 pin interface conversion adapter from which a large-sized television lens and 200 change a portable television camera, and, as for 100, 300 changes connection between the large-sized television lens 100 and the portable television camera 200, and 400 are 36 pin connectors which connect the 36 pin interface-12 pin interface conversion adapter 300 with the large-sized television lens 100, and show only 4, 5, 8, 12, 14, 16, 17, and a No. 18 or 19 pin as a pin, and other pins are omitted. 500 is 12 pin connectors which connect the 36 pin interface-12 pin interface conversion adapter 300 with the portable television camera 200, as a pin, only 1, 3, 5, 6, 7, 8, and a No. 11 or 12 pin are shown, and other pins are omitted.

[0036] Next, the configuration inside the large-sized television lens 100 is explained.

[0037] About 101-121, it is the same configuration as the gestalt of the 1st operation, and the explanation is omitted.

[0038] The serial communication change section to which 123 changes pin assignment of a serial communication function according to the television camera connected, and 124 are the interface decision sections which judge whether the television camera 200 connected by the existence of serial communication data is 12 pin serial interface, 36 pin serial interface, or a parallel interface, and control 36 pin interface change section 121 and the serial communication change section 123.

[0039] The 36 pin interface-12 pin interface conversion adapter 300 uses what is making only a wiring change, in order to take adjustment of 36 pin parallel interface currently used from the former, and 12 pin parallel interface.

[0040] In the above-mentioned configuration, when the portable television camera 200 is 12 pin serial interface correspondence, a serial communication signal is inputted from the No. 19 pin of 36 pin connectors 400 through the No. 12 pin of 12 pin connectors 500. This serial communication signal is detected in the interface decision section 124 in the large-sized television lens 100, and 36 pin interface change section 121 is changed to a serial interface side. Moreover, having been inputted from the No. 19 pin side of 36 pin connectors 400 also detects, a serial communication number changes the serial communication change section 123 to 12 pin interface side, and the interface decision section 124 performs serial communication to coincidence.

[0041] When the portable television camera 200 has not 12 pin serial interface corresponded, a serial communication signal is not inputted from the No. 12 pin of 12 pin connectors 500, and the No. 19 pin of 36 pin connectors 400. Since the interface decision section 124 in the large-sized television lens 100 cannot detect a serial communication signal, it judges it as a parallel interface and changes 36 pin interface change section 121 to a parallel interface side.

[0042] Next, the block diagram at the time of using the large-sized television lens of the gestalt of the 2nd operation with a large-sized television camera is shown in drawing 3.

[0043] As shown in drawing 3, 600 is a large-sized television camera. Since the large-sized television camera 600 and the large-sized television lens 100 are 36 pin interfaces, they are unnecessary. [ of a 36 pin interface-12 pin interface

conversion adapter ]

[0044] In the above-mentioned configuration, when the large-sized television camera 600 is 36 pin serial interface correspondence, a serial communication signal is inputted from the No. 18 pin of 36 pin connectors 400. This serial communication signal is detected in the interface decision section 124 in the large-sized television lens 100, and 36 pin interface change section 121 is changed to a serial interface side. Moreover, having been inputted from the No. 18 pin side of 36 pin connectors 400 also detects, a serial communication number changes the serial communication change section 123 to 36 pin interface side, and the interface decision section 124 performs serial communication to coincidence.

[0045] When the large-sized television camera 600 has not 36 pin serial interface corresponded, a serial communication signal is not inputted from the No. 18 pin of 36 pin connectors 400. Since the interface decision section 124 in the large-sized television lens 100 cannot detect a serial communication signal, it judges it as a parallel interface and changes 36 pin interface change section 121 to a parallel interface side.

[0046] Moreover, although the serial communication signal was detected in the interface decision section 124 in the large-sized television lens 100 and 36 pin interface change section 121 and the serial communication change section 123 are changed with the gestalt of operation of \*\*\*\* 2, 36 pin interface change section 121 and the serial communication change section 123 may be changed manually.

[0047] Furthermore, although the serial communication signal was detected in the interface decision section 124 in the large-sized television lens 100 and 36 pin interface change section 121 and the serial communication change section 123 are changed with the gestalt of operation of \*\*\*\* 2, these activities may be done by the portable television lens 200 side.

[0048] the dissolution of the fault of connection of the serial interface at the time of looking like [ a portable television camera ] the large-sized television lens corresponding to serial interface, and using it and a parallel interface is realizable by establishing a means to judge whether they are one of the interfaces of serial one and parallel in a large-sized television lens as explained above, a means to judge whether it is 36 pin serial interface at the time of serial interface, and whether it is 12 pin serial interface, and an interface change means.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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### [Brief Description of the Drawings]

**[Drawing 1]** It is the block diagram between large-sized television lens-portable television cameras showing the gestalt of operation of the 1st of this invention.

**[Drawing 2]** It is a block diagram between the large-sized television lens-portable television cameras in which the gestalt of operation of the 2nd of this invention is shown.

**[Drawing 3]** It is a block diagram between large-sized television lens-large-sized television cameras in the gestalt of operation of the 2nd of this invention.

**[Drawing 4]** It is a block diagram between the conventional television lens-television cameras.

### [Description of Notations]

100 Large-sized Television Lens

101 Focal Lens Group

102 Zoom Lens Group

103 Relay Lens Group

104 Iris Wing

105 Extender Lens Group

106 Focal Position Transducer

107 Focal Position Signal Operation Part

108 Analog Position Transducer

109 Analog Position Signal Operation Part

110 Motor

111 Driver Line

112 Extender Position Transducer

113 Extender Position Signal Operation Part

114 Iris Servo Gain Transducer

115 Analog Control Signal Operation Part

116, 117, 118 A/D converter

119 Switch

120 CPU

121 36 Pin Interface Change Section

122, 124, 302 Interface decision section

123 Serial Communication Change Section

200 Portable Television Camera

300 36 Pin Interface-12 Pin Interface Conversion Adapter

301 12 Pin Interface Change Section

400 36 Pin Connectors

500 Twelve Pin Connectors

600 Large-sized Television Camera

700 Portable Television Lens

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[Translation done.]

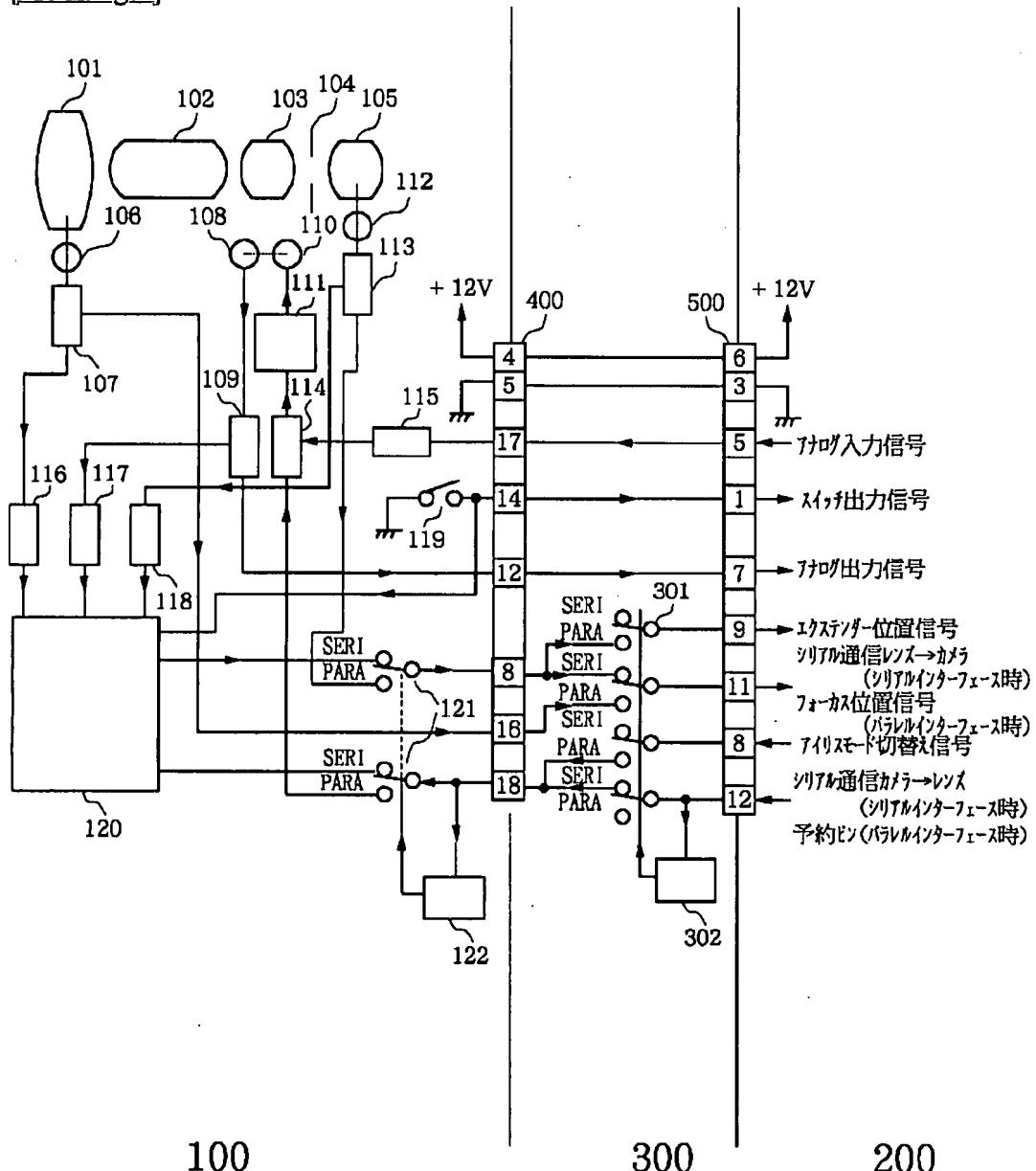
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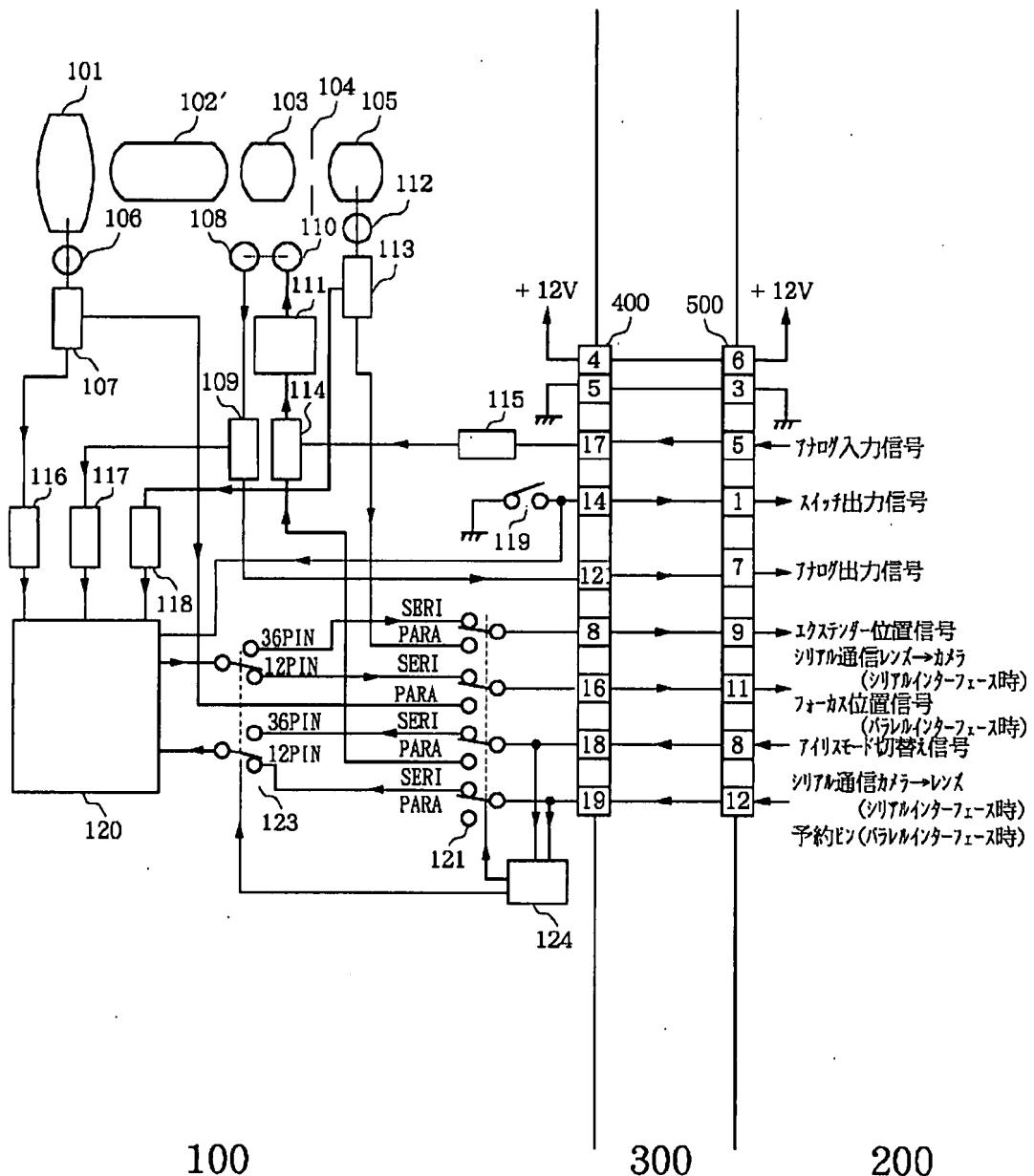
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## DRAWINGS

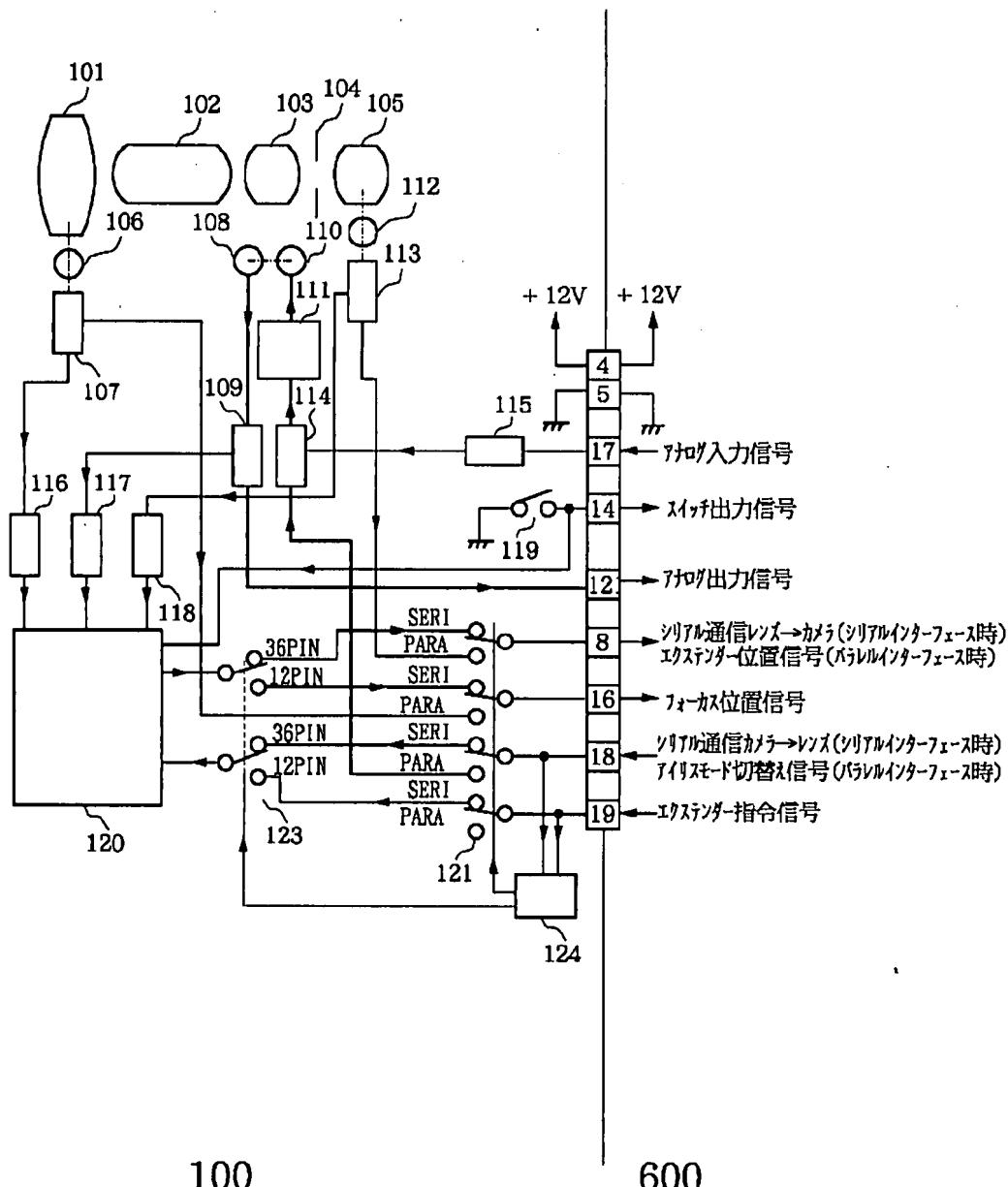
## [Drawing 1]



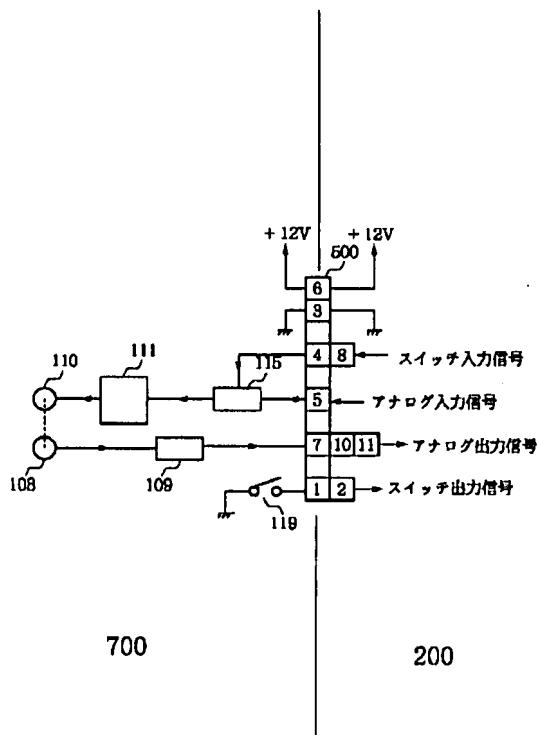
## [Drawing 2]



[Drawing 3]



[Drawing 4]



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[Translation done.]